

WHAT IS CLAIMED IS:

1. A ball grid array (BGA) package, comprising:
 - a substrate that has a first surface and a second surface;
 - a heat spreader that has a first surface and a second surface, wherein said first heat spreader surface is attached to said second substrate surface; and
 - a plurality of solder balls attached to said second substrate surface outside an outer dimensional profile of said heat spreader;wherein said second heat spreader surface is configured to be coupled to a printed circuit board (PCB).

2. The package of claim 1, further comprising:
 - a metal ring attached to said first substrate surface.

3. The package of claim 2, wherein an outer profile of said heat spreader overlaps with an inner profile of said metal ring.

4. The package of claim 1, wherein said second heat spreader surface is plated with solder that allows said second heat spreader surface to be surface mounted to soldering pads on the PCB.

5. The package of claim 1, wherein said substrate has a window opening.

6. The package of claim 5, further comprising:
 - an integrated circuit (IC) die that is mounted to said first heat spreader surface and is accessible through said window opening.

7. The package of claim 6, wherein said IC die has a surface that includes a contact pad, wherein said package further comprises:

a wire bond that couples said contact pad to a corresponding metal trace on said first substrate surface.

8. The package of claim 6, wherein said IC die has a surface that includes a ground contact pad, wherein said package further comprises:

a ground wire bond that couples said ground contact pad to said first heat spreader surface.

9. The package of claim 8, wherein said second heat spreader surface is coupled to a ground potential of the PCB.

10. The package of claim 1, wherein said substrate is a tape substrate.

11. The package of claim 1, further comprising:
an integrated circuit (IC) die that is mounted to said first substrate surface.

12. The package of claim 11, wherein said IC die has a surface that includes a contact pad, wherein said package further comprises:

a wire bond that couples said contact pad to a corresponding metal trace on said first substrate surface.

13. The package of claim 11, wherein said IC die is mounted to said first substrate surface in a flip chip configuration, wherein a conductive bump on an active surface of said IC die is connected to a conductive pad on said first substrate surface.

14. The package of claim 13, further comprising:
a metal ring having a surface attached to said first substrate surface.

15. The package of claim 14, wherein an outer profile of said heat spreader overlaps with an inner profile of said metal ring.

16. The package of claim 14, further comprising:
a second heat spreader attached to a non-active surface of said IC die and
a second surface of said metal ring.

17. The package of claim 13, further comprising a via that extends through said substrate, wherein said via is filled with a conductive material to couple said conductive bump to said heat spreader.

18. A method of assembling a ball grid array (BGA) package, comprising the steps of:
receiving a substrate that has a first surface and a second surface;
attaching a first surface of a heat spreader to the second substrate surface;
configuring a second surface of the heat spreader to be coupled to a printed circuit board (PCB); and
attaching a plurality of solder balls to the second substrate surface outside an outer dimensional profile of the heat spreader.

19. The method of claim 18, further comprising the step of:
attaching a metal ring to the first substrate surface.

20. The method of claim 19, wherein said heat spreader attaching step comprises the step of:
attaching a first surface of the heat spreader to the second substrate surface, wherein an outer profile of the heat spreader overlaps with an inner profile of the metal ring.

21. The method of claim 18, further comprising the step of:

enabling the second heat spreader surface to be surface mounted to soldering pads on the PCB.

22. The method of claim 21, wherein said enabling step comprises the step of:

plating the second heat spreader surface with at least one metal, wherein the at least one metal includes at least one layer of at least one of solder, nickel, and gold.

23. The method of claim 18, further comprising the step of:

forming a window opening in the substrate.

24. The method of claim 23, further comprising the step of:

mounting an integrated circuit (IC) die to the first heat spreader surface, wherein the IC die is accessible through the window opening.

25. The method of claim 24, wherein the IC die has a surface that includes a contact pad, the method further comprising the step of:

coupling a wire bond between the contact pad and a metal trace on the first substrate surface.

26. The method of claim 24, wherein the IC die has a surface that includes a ground contact pad, the method further comprising the step of:

coupling a ground wire bond between the ground contact pad and the first heat spreader surface.

27. The method of claim 26, further comprising the step of:

coupling the second heat spreader surface to a ground potential of the PCB.

28. The method of claim 18, wherein said receiving step comprises the step of:

receiving a tape substrate.

29. The method of claim 18, further comprising the step of:
mounting an integrated circuit (IC) die to the first substrate surface.

30. The method of claim 29, wherein the IC die has a surface that includes a contact pad, the method further comprising the step of:

coupling a wire bond between the contact pad and a metal trace on the first substrate surface.

31. The method of claim 29, wherein said mounting step comprises the step of:

mounting the IC die to the first substrate surface in a flip chip configuration.

32. The method of claim 31, further comprising the step of:
connecting a conductive bump on an active surface of the IC die to a conductive pad on the first substrate surface.

33. The method of claim 32, further comprising:

attaching a surface of a metal ring to the first substrate surface.

34. The method of claim 33, wherein said heat spreader attaching step comprises the step of:

attaching a first surface of the heat spreader to the second substrate surface, wherein an outer profile of the heat spreader overlaps with an inner profile of the metal ring.

35. The method of claim 33, further comprising the step of:
attaching a second heat spreader to a non-active surface of the IC die and
a second surface of the metal ring.

36. The method of claim 32, further comprising the step of:
coupling the conductive bump to the heat spreader through a via that
extends through the substrate.

37. The method of claim 36, wherein said coupling step comprises the
step of:
filling the via with a conductive material.